

## WHAT IS CLAIMED IS:

- Sub  
A<sup>2</sup>
1. A composition of matter selected from the group consisting of:
- a) a substantially pure or recombinant 499E9 protein or peptide exhibiting at least about 85% sequence identity over a length of at least about 12 amino acids to SEQ ID NO: 2;
  - b) a natural sequence 499E9 of SEQ ID NO: 2; or
  - c) a fusion protein comprising 499E9 sequence.
2. A substantially pure or isolated protein comprising a segment exhibiting sequence identity to a corresponding portion of a 499E9 of Claim 1, wherein:
- a) said homology is at least about 90% identity and said portion is at least about 9 amino acids;
  - b) said homology is at least about 80% identity and said portion is at least about 17 amino acids; or
  - c) said homology is at least about 70% identity and said portion is at least about 25 amino acids.
3. The composition of matter of Claim 1, wherein said:
- a) 499E9 comprises a mature sequence of Table 1; or
  - b) protein or peptide:
    - i) is from a warm blooded animal selected from a mammal, including a rodent;
    - ii) comprises at least one polypeptide segment of SEQ ID NO: 2;
    - iii) exhibits a plurality of portions exhibiting said identity;
    - iv) is a natural allelic variant of 499E9;
    - v) has a length at least about 30 amino acids;
    - vi) exhibits at least two non-overlapping epitopes which are specific for a mammalian 499E9;

- 5 vii) exhibits a sequence identity at least about 90% over a length of at least about 20 amino acids to a rodent 499E9;
- viii) exhibits at least two non-overlapping epitopes which are specific for a rodent 499E9;
- 10 ix) exhibits a sequence identity at least about 90% over a length of at least about 20 amino acids to a rodent 499E9;
- x) is glycosylated;
- 15 xi) is a synthetic polypeptide;
- xii) is attached to a solid substrate;
- xiii) is conjugated to another chemical moiety;
- xiv) is a 5-fold or less substitution from natural sequence; or
- xv) is a deletion or insertion variant from a natural sequence.
4. A composition comprising:
- 20 a) a sterile 499E9 protein or peptide of Claim 1; or
- b) said 499E9 protein or peptide of Claim 1 and a carrier, wherein said carrier is:
- i) an aqueous compound, including water, saline, and/or buffer; and/or
- 25 ii) formulated for oral, rectal, nasal, topical, or parenteral administration.
5. The fusion protein of Claim 1, comprising:
- 30 a) mature protein comprising sequence of Table 1;
- b) a detection or purification tag, including a FLAG, His6, or Ig sequence; or
- c) sequence of another TNF ligand protein.
6. A kit comprising a protein or polypeptide of Claim 1, and:
- 35 a) a compartment comprising said protein or polypeptide; and/or

- 9/2/82
- b) instructions for use or disposal of reagents in said kit.

7. ~~A binding compound comprising an antigen binding~~  
5 portion from an antibody, which specifically binds to a natural 499E9 protein of Claim 1, wherein:
- a) said protein is a rodent protein;
  - b) said binding compound is an Fv, Fab, or Fab2 fragment;
  - 10 c) said binding compound is conjugated to another chemical moiety; or
  - d) said antibody:
    - i) is raised against a peptide sequence of a mature polypeptide comprising sequence of
    - 15 Table 1;
    - ii) is raised against a mature 499E9;
    - iii) is raised to a purified 499E9;
    - iv) is immunoselected;
    - v) is a polyclonal antibody;
    - 20 vi) binds to a denatured 499E9;
    - vii) exhibits a  $K_d$  to antigen of at least 30  $\mu M$ ;
    - viii) is attached to a solid substrate, including a bead or plastic membrane;
    - ix) is in a sterile composition; or
    - 25 x) is detectably labeled, including a radioactive or fluorescent label.
8. A kit comprising said binding compound of Claim 7, and:
- 30 a) a compartment comprising said binding compound; and/or
  - b) instructions for use or disposal of reagents in said kit.
- 35 9. A composition comprising:
- a) a sterile binding compound of Claim 7; or

- b) said binding compound of Claim 7 and a carrier,  
wherein said carrier is:
- i) an aqueous compound, including water, saline,  
and/or buffer; and/or
  - ii) formulated for oral, rectal, nasal, topical,  
or parenteral administration.

10. A method of purifying a 499E9 protein or peptide  
from other materials in a mixture comprising contacting  
said mixture to an antibody of Claim 7, and separating  
bound 499E9 from other materials.

11. An isolated or recombinant nucleic acid encoding  
a protein or peptide or fusion protein of Claim 1, wherein:
- a) said 499E9 protein is from a mammal, including a  
rodent; or
  - b) said nucleic acid:
    - i) encodes an antigenic peptide sequence of  
Table 1;
    - ii) encodes a plurality of antigenic peptide  
sequences of Table 1;
    - iii) exhibits at least about 80% identity to a  
natural cDNA encoding said segment;
    - iv) is an expression vector;
    - v) further comprises an origin of replication;
    - vi) is from a natural source;
    - vii) comprises a detectable label;
    - viii) comprises synthetic nucleotide sequence;
    - ix) is less than 6 kb, preferably less than 3  
kb;
    - x) is from a mammal, including a rodent;
    - xi) comprises a natural full length coding  
sequence;
    - xii) is a hybridization probe for a gene  
encoding said TNF-ligand family protein; or
    - xiii) is a PCR primer, PCR product, or  
mutagenesis primer.

59 ~~43~~.

- a) a prokaryotic cell;
- b) a eukaryotic cell;
- c) a bacterial cell;
- d) a yeast cell;
- e) an insect cell;
- f) a mammalian cell;
- g) a mouse cell;
- h) a rodent cell; or
- i) a human cell.

17. The nucleic acid of Claim 16, wherein:

- a) said wash conditions are at 55° C and/or 150 mM salt; or
- b) said identity is at least 95% and/or said stretch is at least 75 nucleotides.

5

18. A method of modulating physiology or development of a cell or tissue culture cells comprising introducing into said cell an agonist or antagonist of a 499E9 of Claim 1.

10

19. A method of modulating the physiology of a cell comprising contacting said cell with:

- a) a substantially pure 499E9 or fragment of Claim 1;
- b) an antibody or binding partner which specifically binds a 499E9; or
- c) a nucleic acid encoding a 499E9 or peptide.

15

20. The method of Claim 19, wherein said cell is a T cell and said modulating of physiology is:

20

- a) apoptosis of said T cell; or
- b) activation of said T cell

262727-29E68680

add  
24